

CLAIMS

1. A method for growing a high quality single crystal comprising growing a single crystal by bringing a seed crystal into contact with a raw material melt which is heated and melted within a crucible, wherein a blade member or a baffle member is arranged in the raw material melt in the crucible, and the crystal is grown with rotating the crucible without rotating the blade member or the baffle member.
- 10 2. A method according to claim 1, wherein the single crystal is grown by slowly pulling up the seed crystal which is brought into contact with the raw material melt.
- 15 3. A method according to claim 1, wherein the crystal is grown by slowly cooling the raw material melt with which the seed crystal makes contact below liquid level to precipitate a single crystal on the surface of the seed crystal.
4. A method according to any one of claims 1 to 3, wherein the seed crystal is also rotated while rotating the crucible.
- 20 5. A method according to any one of claims 1 to 4, wherein a single crystal of an oxide is grown.
6. A method according to claim 5, wherein the single crystal of an oxide is a single crystal of a borate type oxide.
- 25 7. A method according to claim 6, wherein the borate type oxide is  $CsLiB_5O_{10}$  or an oxide obtained by partially substituting at least one of Cs and Li of  $CsLiB_5O_{10}$  with at least one type among other alkali metal elements and alkali earth metal elements.

8. A method according to claim 7, wherein the oxide is an oxide doped with at least one of Al and Ga elements.

9. A method according to claim 6, wherein the borate type oxide is represented by  $Gd_xY_{1-x}Ca_4O(BO_3)$ , ( $0 < x < 1$ ) and the 5 crystal is grown by a pulling method.

10. A method according to claim 5, wherein the single crystal of an oxide is  $LiNbO_3$ ,  $LiTaO_3$ , a high-temperature superconductive oxide material or a heat-electricity-conversion oxide material.

10 11. An apparatus for growing a high quality single crystal by bringing a seed crystal into contact with a raw material melt which is heated and melted within a crucible, comprising a blade member or a baffle member arranged in the raw material melt in the crucible and a rotating material for 15 rotating the crucible.

12. A growing apparatus according to claim 11 comprising a pulling mechanism for slowly pulling up the seed crystal which is brought into contact with the raw material melt.

20 13. A growing apparatus according to claim 11 comprising a cooling mechanism for slowly cooling the raw material melt, with which the seed crystal makes contact, below liquid level.

14. A growing apparatus according to any one of claims 25 11 to 13 comprising a mechanism for rotating the seed crystal.

15. An apparatus for growing a single crystal of an oxide comprising the growing apparatus as claimed in any one

of claims 11 to 14.

16. A growing apparatus according to claim 15 being used for growing a single crystal of a borate type oxide.